IN THE UNITED STATES DISTRICT COURT FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA,)
Plaintiff,)
v.) Case No. 05-cv-329-GKF(PJC)
TYSON FOODS, INC., et al.,)
Defendant	ss.)

STATE OF OKLAHOMA'S REPLY IN FURTHER SUPPORT OF ITS MOTION IN LIMINE TO PRECLUDE EXPERT TESTIMONY OF DEFENDANTS' WITNESSGLENN W. JOHNSON, Ph.D. [DKT #2083]

The State of Oklahoma ("the State") has moved, pursuant to Fed. R. Evid. 104 and 702, and Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993), for an order in limine precluding the expert testimony of Defendants' witness Glenn W. Johnson Ph.D. ("Dr. Johnson") regarding his critique of Dr. Roger Olsen's Principal Component Analysis ("PCA"). In their Response to the State's Motion, Defendants contend that Dr. Johnson is qualified as an expert through knowledge and experience and that his opinion rests on an adequate scientific and factual foundation [DKT #2169]. Defendants' Response actually highlights Dr. Johnson's *lack* of knowledge. Indeed, Dr. Johnson himself -- through his new declaration -- shows that his opinion is based on a chemical and physical impossibility. Further, as has become a systemic phenomenon, Dr. Johnson's new testimony directly conflicts with other Defense experts. Lastly, Defendants now make the novel contention that the knowledge and expertise of their other experts can simply be imputed to Dr. Johnson in order to overcome his shortcomings. Each of Defendant's arguments is without merit and should be rejected.

Dr. Johnson's original opinions and his new offerings are not based on an adequate factual foundation. Dr. Johnson has now, and throughout this case, displayed a lack of understanding of the fundamental science *required* to support his opinions. Dr. Johnson now, and throughout this case, has failed to perform the requisite analyses to validate his opinions. In summary, what Dr. Johnson offers is merely *ipse dixit* and his testimony and report must be excluded.

I. Discussion

A. The opinions of Drs. Johnson and Murphy directly conflict with each other

In an effort to discredit rather than disprove the State's experts, Defendants have taken a shotgun approach, attacking every detail of the State's experts' analysis without offering any meaningful analysis or alternative explanations of their own as to how poultry waste disposal is *not* impacting the IRW, and why bacteria and phosphorus contamination exists in the IRW. As a result, Defendants' experts sharply contradict each other.

Defendants' expert Dr. Murphy goes into great detail as to why Dr. Olsen should have run a "multimedia" PCA.¹ Dr. Olsen explains in his declaration and report that a multimedia PCA is not useful and is unworkable in this instance because the forms of and relationships among the poultry waste constituents change when they come in contact

¹ Dr. Murphy later admits that a multimedia PCA is not useful for identifying sources; however, he maintains the opinion that in this isolated and single fact scenario it would be, with little to no explanation. Dr. Murphy admits that he has never utilized such a multimedia approach in an environmental case. DKT #2074, Ex. B (Murphy Depo., 51:23-52:3. *See also Id.* at 165:12-21). Dr. Murphy has been consistently unable to identify other cases in which Multimedia PCA has been used for investigation of nutrient pollution such as the phosphorus contamination at issue in this case. DKT #2074, Ex. B (Murphy Depo., 104:6-10).

with rain water. Simply put, a multimedia PCA analysis cannot work. *See* DKT #2083, Ex. C (Loftis Decl., ¶ 9). Dr. Johnson is in total agreement with Dr. Olsen and *total disagreement* with Dr. Murphy on this essential fact:

... these chemicals are not conservative in the environment. That is, they do not behave similarly in an aqueous environment. Diagnostic chemical differences and ratios that might be observed in the original presumed source materials (i.e. poultry litter, cattle manure, and WWTP effluent) are not preserved once those constituents are in water.

DKT #2169, Ex. 1 (Johnson Rpt. at p. 70). What this means is that Dr. Olsen and Dr. Johnson agree, in this instance, that the poultry signature is not preserved from solid media to liquid media. It is clear from this disagreement that Defendants have not undertaken any analysis to support a unified alternative theory of what happens to the phosphorus and bacteria in land applied poultry waste; Defendants merely offer contradicting expert testimony to confuse the issues in an attempt to discredit Plaintiff's experts rather than prove they do not meet *Daubert* criteria.

This is not the only area in which Dr. Johnson and Dr. Murphy contradict each other. They also contradict one another regarding the source of the excessive phosphorus in the IRW. Dr. Johnson, who originally opined that the phosphorus was a result of "natural" occurrences, now admits that the sources are likely *not natural*. *See* DKT #2169, at pp. 5-6; Ex. 2 (Johnson Decl. at ¶ 6). Dr. Murphy, taking an opposing view, opines that the pervasively high phosphorus concentrations in the IRW are the result of native soil, i.e., natural and unimpacted by human activities, runoff. *See* DKT #2190, at p. 6.² These irreconcilable opinions highlight the lack of scientific knowledge among the

In yet another contradiction, Defendants' expert Dr. Connolly has suggested that poultry waste phosphorus does not even runoff of land applied fields because they hold

B. Despite Defendants' claims to the contrary, Dr. Johnson lacks understanding of even the most fundamental concepts needed to support his opinions

Notwithstanding Dr. Johnson's statements made under oath and his written report, Defendants in their Response now claim that Dr. Johnson has never opined or been of the opinion that most of the phosphorus in the IRW is "particulate" bound. DKT #2169, at pp. 6-7. As authority for this new argument Defendants cite to paragraph six of Dr. Johnson's new declaration. However, this paragraph makes no mention of the quantitative measurement of particulate versus dissolved phosphorus in the IRW. *See* DKT #2169, Ex. 2 (Johnson Decl. at ¶ 6). And Defendants' argument that Dr. Johnson has never opined that most of the phosphorus in the IRW is "particulate" bound is belied by his own deposition testimony:

- Q So it's your opinion that most of the phosphorus that runs off from land-applied fields where poultry waste has been applied is in the particulate form?

- A I'm saying *most of the total phosphorus* that we measure in the water *is bound to particulates*.

the phosphorus like Fort Knox holds the gold in its vaults. *See* Exhibit A (Connolly Depo., 146:21-147:5).

DKT #2083, Ex. B (Johnson Depo., 144:19-25) (emphasis added). The original opinion put forth by Dr. Johnson -- which Defendants now disclaim -- does not reflect real world conditions. And now that he has become more educated in this subject matter, Dr. Johnson himself has changed his view to fit the facts. DKT #2083, Ex. D (Olsen Decl. at ¶¶ 13-14).

At his deposition, when confronted with the IRW data, Dr. Johnson stated that he had no reason to disagree with studies showing that most of the phosphorus in the IRW was actually dissolved and ultimately admitted that he had conducted no study and has no knowledge regarding the most common form of phosphorus in the IRW. DKT #2083, Ex. B (Johnson Depo. 175:11-176:5). Dr. Johnson's admitted lack of knowledge regarding the dominant phase of phosphorus in the IRW is fatal to his opinion as to how to interpret the PCA analysis. In order for Dr. Johnson to actually support his opinion it is essential for him to know the relative amounts of particulate and dissolved phosphorus in the IRW. Dr. Johnson's lack of understanding of the relative amounts of these two forms of phosphorus means that his opinion is his opinion alone, not supported by knowledge of the actual conditions in the IRW. DKT # 2083, Ex. D (Olsen Decl. at ¶ 15).

Dr. Johnson further highlights his lack of understanding in this area in his new declaration in which he states:

I assert that the variability of total phosphorus in Olsen's PCA (regardless of source) is primarily a function of partitioning between the particulate and dissolved phase.

DKT #2169, Ex. 2 (Johnson Decl. at ¶ 8). This statement is literally chemically and physically impossible and serves to highlight Dr. Johnson's lack of understanding and inability to offer a sound critique of Dr. Olsen's PCA analysis. Total phosphorus, as its name would indicate, is a measure of all phases of phosphorus, including particulate and dissolved. As such, partitioning between particulate and dissolved phases will have *no effect* on total phosphorus variability whatsoever. Dr. Johnson's main opinion is that phosphorus partitioning effects the variability and thus the PCA results. However, after he finally explained his opinion in his most recent declaration, it is clear that it is unreliable and is, in fact, scientifically impossible.

Dr. Johnson's assertion that total suspended solids concentration affects variability simply ignores the fact that there must be a source of phosphorus in the IRW. See DKT #2169, Ex. 2 (Johnson Decl. at ¶ 6). Further, Dr. Johnson fails to recognize that much of the impact of poultry waste in the IRW comes in the form of dissolved phosphorus. DKT #2083, Ex. D (Olsen Decl. at ¶¶ 13-14). This statement and others throughout Dr. Johnson's report, deposition, and new declaration prove that he has little or no expertise in phosphorus fate and transport and is not qualified to draw any conclusions about the interpretation of PCA results as they relate to phosphorus contamination in the IRW.

For instance, contrary to Dr. Johnson's assertions in his declaration, adsorption of phosphorus is not like partitioning of PCBs. They are totally different types of processes. PCBs move and distribute very differently in the environment than phosphorus. DKT #2083, Ex. C (Loftis Decl. at ¶ 18). PCBs are synthetic organic molecules, with no charge, while phosphorus exists in many forms, both organic and inorganic, but primarily as negatively charged ions. *See* DKT #2083 Ex. B. (Johnson Depo., 447:15-449:24) (discussing the charge of phosphate and that being charged inherently means that

phosphorus is not hydrophobic like a PCB, but rather dissolves in water). Contrary to Dr. Johnson's statements, kinetics is not relevant to this case. "Partitioning" as Dr. Johnson uses the term implies a relatively constant partition coefficient between the adsorbed and dissolved concentrations of phosphorus. Dr. Johnson does not know this. *See* DKT #2083, Ex. D (Olsen Decl., at ¶11). Dr. Johnson did not make any effort to evaluate whether or not this ratio applied in the IRW, and in fact it does not. *Id.* Thus, it is clear that other mechanisms, especially dissolution of poultry waste, are operative and in fact exert dominant controls on total phosphorus concentrations in the IRW.

Since Dr. Johnson, in forming his opinion, has relied on assertions of fact that are demonstrably false, his opinion must fail as not based on good grounds or scientific knowledge. *See* Fed. R. Evid. 702; *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1222 (10th Cir. 2003) ("To be reliable under *Daubert*, an expert's scientific testimony must be based on scientific knowledge . . ."); *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 590 (1993) ("[I]n order to qualify as 'scientific knowledge,' an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation -- *i.e.*, 'good grounds,' based on what is known").

C. Dr. Johnson, for the first time in this case, now argues that he did consider alternative sources of phosphorus

Dr. Johnson's primary opinion in this case is that geochemical processes rather than sources drive the PCA. Defendants do not deny that for Dr. Johnson to form this opinion it is necessary for him to carefully consider and analyze alternative sources. Rather than deny the obvious, they now -- *for the first time* -- claim that Dr. Johnson *did consider alternative sources*. DKT #2169, at pp. 11-13. Defendants make two principal arguments concerning Dr. Johnson's evaluation of sources.

First, Defendants maintain that Dr. Johnson's one time drive through and fly-over of the watershed constitutes an analysis of sources:

Dr. Johnson conducted a thorough tour of the IRW . . . he not only took an aerial tour of the IRW, but he also took a driving tour of the watershed. During his tour of the IRW, Dr. Johnson observed the various urban, industrial and agricultural land uses throughout the IRW that can contribute phosphorus to the surface waters and groundwaters as well as the location of WWTPs that discharge phosphorus daily into the IRW streams and rivers.

DKT #2169, at pp. 11-12 (citations omitted). Thus, Dr. Johnson's examination of alternative sources is limited to observing a small number of land uses during a one-time drive through and fly over. Though such limited observation, Dr. Johnson cannot possibly understand either quantitatively or qualitatively the pervasive and excessive phosphorus found in the IRW, particularly since phosphorus is not visible to the naked eye, whether viewed from an automobile or an airplane. A vast array of state and federal agencies, as well as retained and non-retained experts, have studied the IRW in far more detail than a drive by or a fly by, and concluded poultry waste contributes significantly to phosphorus loading of the IRW. *See* DKT 2062, ¶ 48.

Second, Defendants argue that since other experts analyzed sources, their knowledge should be imputed to Dr. Johnson. *Id.* This is patently illogical. While it is generally true that experts may rely on other experts, (*See* Fed. R. Evid. 703) this use of the concept goes beyond mere reliance. What Dr. Johnson is asking the Court do to is impute to him knowledge that he does not actually posses and analysis that he did not perform -- in order to save his own flawed conclusions. *See TK-7 Corp. v. Estate of Ihsan Barbouti*, 993 F.2d 722, 732 (10th Cir. 1993). In this case, Dr. Johnson never claimed to have analyzed or considered other potential sources until now. While Dr. Johnson *could*

have relied on the work of other experts, in this case he did not do so. The record shows that Dr. Johnson, in fact, disclaimed performing any sort of source analysis or having any opinion at all as to the major sources of phosphorus in the IRW because he was not asked to do so:

- Do you know what the sources of phosphorus are in the IRW? Q
- Α No, I don't.
- Do you know what the sources of bacteria, fecal bacteria are in the IRW? Q
- No. I don't. Α
- Did you do any evaluation of sources for phosphorus in the IRW at all, review any literature, for example?
- There's literature cited in my report. Was your question specific to IRW? I'm sorry?
- Yes, yes. Sources of phosphorus in the IRW. O
- A No.

DKT #2083, Ex. B (Johnson Depo., 142:4-9, 143:6-12); see also Id. (Johnson Depo., 80:7-12, 136:16-21, 435:21-25). Since Dr. Johnson did not conduct any source analysis himself, his opinion is merely ipse dixit and lacks the appropriate scientific foundation to be admitted. Norris v. Baxter Healthcare Corp., 397 F.3d 878, 886 (10th Cir. 2005) ("[n]either Daubert nor the Federal Rules of Evidence 'require[] a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert.")(quoting General Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997)).

П. Conclusion

WHEREFORE, in light of the foregoing, this Court should enter an order in limine precluding the entire expert testimony of Defendants' witness Glenn Johnson Ph.D. due to his lack of experience and education pertaining to the subject matter on which he opines, and further because he has undertaken none of the analyses necessary to support his opinions.

W.A. Drew Edmondson OBA # 2628 ATTORNEY GENERAL Kelly H. Burch OBA #17067 ASSISTANT ATTORNEYS GENERAL State of Oklahoma 313 N.E. 21st St. Oklahoma City, OK 73105 (405) 521-3921 Page 10 of 16

/s/ David P. Page

M. David Riggs OBA #7583
Joseph P. Lennart OBA #5371
Richard T. Garren OBA #3253
Sharon K. Weaver OBA #19010
Robert A. Nance OBA #6581
D. Sharon Gentry OBA #15641
David P. Page OBA #6852
RIGGS, ABNEY, NEAL, TURPEN,
ORBISON & LEWIS
502 West Sixth Street
Tulsa, OK 74119
(918) 587-3161

Louis W. Bullock OBA #1305 Robert M. Blakemore OBA 18656 BULLOCK, BULLOCK & BLAKEMORE 110 West Seventh Street Suite 707 Tulsa OK 74119 (918) 584-2001

Frederick C. Baker (admitted *pro hac vice*)
Elizabeth C. Ward (admitted *pro hac vice*)
Elizabeth Claire Xidis (admitted *pro hac vice*)
MOTLEY RICE, LLC
28 Bridgeside Boulevard
Mount Pleasant, SC 29465 (843) 216-9280

William H. Narwold (admitted *pro hac vice*) Ingrid L. Moll (admitted *pro hac vice*) MOTLEY RICE, LLC 20 Church Street, 17th Floor Hartford, CT 06103 (860) 882-1676

Jonathan D. Orent (admitted *pro hac vice*) Michael G. Rousseau (admitted *pro hac vice*) Fidelma L. Fitzpatrick (admitted *pro hac vice*) MOTLEY RICE, LLC 321 South Main Street Providence, RI 02940 (401) 457-7700

Attorneys for the State of Oklahoma

CERTIFICATE OF SERVICE

I hereby certify that on this <u>19th</u> day of <u>June</u>, 2009, I electronically transmitted the above and foregoing pleading to the Clerk of the Court using the ECF System for filing and a transmittal of a Notice of Electronic Filing to the following ECF registrants:

W. A. Drew Edmondson, Attorney General	fc_docket@oag.state.ok.us	
Kelly H. Burch, Assistant Attorney General	kelly burch@oag.state.ok.us	
M. David Riggs	driggs@riggsabney.com	
Joseph P. Lennart	jlennart@riggsabney.com	
Richard T. Garren	rgarren@riggsabney.com	
Sharon K. Weaver	sweaver@riggsabney.com	
Robert A. Nance	rnance@riggsabney.com	
D. Sharon Gentry	sgentry@riggsabney.com	
David P. Page	dpage@riggsabney.com	
RIGGS, ABNEY, NEAL, TURPEN, ORBISON & LEWIS		
Louis Werner Bullock	lbullock@bullock-blakemore.com	
Robert M. Blakemore	bblakemore@bullock-blakemore.com	
BULLOCK, BULLOCK & BLAKEMORE		
Frederick C. Baker	fbaker@motleyrice.com	

gtodd@sidley.com

Gordon D. Todd

Also on this day of, 2009 In foregoing pleading to:	mailed a copy of the above and
Thomas C Green via email: tcgreen@sidley.cor Sidley, Austin, Brown & Wood LLP	n
Dustin McDaniel Justin Allen Office of the Attorney General (Little Rock) 323 Center St, Ste 200 Little Rock, AR 72201-2610	
Steven B. Randall 58185 County Rd 658 Kansas, Ok 74347	
Cary Silverman via email: csilverman@shb.com Victor E Schwartz Shook Hardy & Bacon LLP (Washington DC)	n
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